

1 **WHAT IS CLAIMED IS:**

2 1. A generator for a bicycle that includes a frame, wheels rotatably
3 mounted on the frame and an insulating bracket attached to the frame, the
4 generator comprising:

5 a rotor adapted to be rotatably mounted on the insulating bracket and
6 abutting the wheel of the bicycle, the rotor including:

7 two casings each having a first side abutting each other to form
8 a chamber in the rotor and a second side opposite to each other;

9 a hole centrally defined in the second side of each casing to
10 securely mount a bearing in the rotor;

11 a recess centrally defined in the first side of each casing and
12 having a diameter greater than that of the hole; and

13 an indent defined in an inner periphery of the hole;

14 an annular coil securely mounted in the chamber in the rotor, the
15 annular coil including:

16 multiple salient poles situated in an inner periphery of the
17 annular coil and parallel to the axis of rotation; and

18 two inner wires respectively electrically connected to the salient
19 poles and extending through the indent in the casing to electrically connect
20 to an outer periphery of the bearing;

21 a stator rotatably extending through the rotor and the coil, the stator
22 including:

23 a shaft made of insulating material, the shaft rotatably
24 extending through the coil, the shaft having two opposite ends

1 respectively secured in the bearing and partially extending out of the
2 bearing and adapted to be secured in the insulating bracket of the bicycle
3 for mounting the rotor on the bicycle;
4 an annular flange radially extending outwardly from a middle
5 portion of the shaft; and
6 a ring of permanent magnets mounted on an outer periphery of
7 the annular flange and corresponding to the salient poles of the coil;
8 a electrical ring connector mounted around the end of the shaft and
9 electrically connected to a middle portion of the bearing; and
10 an outer wire with a first end electrically attached to the electrical ring
11 connector and a second end adapted to be attached to a light that is mounted on
12 the bicycle;
13 wherein the coil will rotate with the casings relative to the stator
14 when the bicycle is in use and generate electricity that is transmitted to the light
15 to operate the light.

16 2. The generator for a bicycle as claimed in claim 1, wherein the recess
17 in the casing comprises a bottom having an annular flange inwardly and radially
18 extending from the bottom of the recess to stop the bearing and form a passage
19 communicating with hole and the recess, and the indent is defined in the annular
20 flange.

21 3. The generator for a bicycle as claimed in claim 1, wherein each
22 casing comprises at least one stud perpendicularly extending from the first side
23 and at least one bore defined in the first side to securely receive a corresponding
24 stud extending from the first side of the other casing.

1 4. The generator for a bicycle as claimed in claim 1, wherein the stator
2 comprises a protrusion extending from two opposite sides of the annular flange
3 of the stator and around to abut a middle portion of the bearing.

4 5. The generator for a bicycle as claimed in claim 2, wherein each
5 casing comprises at least one stud perpendicularly extending from the first side
6 and at least one bore defined in the first side to securely receive a corresponding
7 stud.

8 6. The generator for a bicycle as claimed in claim 2, wherein the stator
9 comprises a protrusion extending from two opposite sides of the annular flange
10 of the stator and around to abut a middle portion of the bearing.

11 7. The generator for a bicycle as claimed in claim 3, wherein the stator
12 comprises a protrusion extending from two opposite sides of the annular flange
13 of the stator and around to abut a middle portion of the bearing.

14 8. The generator for a bicycle as claimed in claim 4, wherein the
15 permanent magnets have magnetic poles that alternate around the permanent
16 magnet.

17 9. The generator for a bicycle as claimed in claim 5, wherein the stator
18 comprises a protrusion extending from two opposite sides of the annular flange
19 of the stator and around to abut a middle portion of the bearing.

20 10. The generator for a bicycle as claimed in claim 6, wherein the
21 permanent magnets have magnetic poles that alternate around the permanent
22 magnet.

23 11. The generator for a bicycle as claimed in claim 7, wherein the
24 permanent magnets have magnetic poles that alternate around the permanent

1 magnet.

2 12. The generator for a bicycle as claimed in claim 8, wherein the coil
3 comprises two metal covers abutting each other are soldered to enclose a coil
4 seat and a winding wound around the coil seat, and the salient poles
5 perpendicularly extend from an inner periphery of each cover.

6 13. The generator for a bicycle as claimed in claim 9, wherein the
7 permanent magnets have magnetic poles that alternate around the permanent
8 magnet.

9 14. The generator for a bicycle as claimed in claim 10, wherein the coil
10 comprises two metal covers abutting each other are soldered to enclose a coil
11 seat and a winding wound around the coil seat, and the salient poles
12 perpendicularly extend from an inner periphery of each cover.

13 15. The generator for a bicycle as claimed in claim 11, wherein the coil
14 comprises two metal covers abutting each other are soldered to enclose a coil
15 seat and a winding wound around the coil seat, and the salient poles
16 perpendicularly extend from an inner periphery of each cover.

17 16. The generator for a bicycle as claimed in claim 13, wherein the coil
18 comprises two metal covers abutting each other are soldered to enclose a coil
19 seat and a winding wound around the coil seat, and the salient poles
20 perpendicularly extend from an inner periphery of each cover.